

**I. Listing of Claims**

1-15. (Canceled)

16. (Currently Amended): A process for assembling a medical device (110), the medical device (110) comprising a unitarily and continuously formed portion (108) having a varying durometer, and the process comprising:

creating an irradiation cross-linkable mixture of a polyamide elastomer and at least one additional cross-linking reactant;

forming the mixture into a unitarily and continuously formed portion (108);  
and,

placing a shield (196) of varying density between the unitarily and continuously formed portion (108) and a source of cross-linking irradiation; and

exposing the unitarily and continuously formed portion (108), at least in part, to cross-linking irradiation,

wherein forming is carried out so as to yield a unitarily and continuously formed portion (108) comprising at least first and second parts (102 and 104) unitarily and continuously formed with one another, and the exposing step comprises exposing at least one of the first and second parts (102 or 104) to cross-linking irradiation,

wherein the exposing step comprises exposing a unitarily and continuously formed transition zone (105) between the first and second parts (102 and 104) to a continuously varying amount of cross-linking irradiation.

17. (Canceled)

18. (Currently Amended): A process for assembling a medical device (110), the medical device (110) comprising a unitarily and continuously formed portion (108) having a varying durometer, and the process comprising:

creating an irradiation cross-linkable mixture of a polyamide elastomer and at least one additional cross-linking reactant;

forming the mixture into a unitarily and continuously formed portion (108); and

exposing the unitarily and continuously formed portion (108), at least in part, to cross-linking irradiation,

placing a shield (198) between the unitary and continuously formed portion (108) and a source of cross-linking irradiation, prior to the exposing step, wherein the shield (196) has varying density between the unitarily and continuously formed portion (108) and the source of cross-linking irradiation.

19-25. (Canceled)

26. (Currently Amended): A process for assembling a medical device (110), the medical device (110) comprising a unitarily and continuously formed portion (108) having a varying durometer, and the process comprising:

creating an irradiation cross-linkable mixture of a polyamide elastomer and at least one additional cross-linking reactant;

forming the mixture into a unitarily and continuously formed portion (108); and

exposing the unitarily and continuously formed portion (108), at least in part, to cross-linking irradiation, the cross-linking reactant comprising[[:]]

~~(a) a difunctional material selected from the class consisting of diallyl adipate; diallyl carbonate; diallyl maleate; diallyl succinate; diallyl tetrabromophthalate; diethyl diallylmalonate; dimethyl diallylmalonate; and 2,2,6,6-tetrabromobisphenol A diallyl ether;~~

~~(b) a trifunctional material selected from the class consisting of 2,5-diallyl-4,5-dimethyl-2-cyclopenten-1-one; diallyl fumarate; diallyl itaconate; 1,3,5-triallyl-2-methoxybenzene; triallyl trimesate (triallyl 1,3,5-benzenetricarboxylate); triallyl trimellitate (triallyl 1,2,4-benzenetricarboxylate); and pentaerythritol-triallyl ether;~~

~~(c) a tetrafunctional material selected from the class consisting of tetraallyl cis,cis,cis,cis-cyclopentane-1,2,3,4-tetracarboxylate; and N,N,N',N'-tetraallylethylenediamine; or~~

~~(d) an aromatic molecule containing at least two ring substituents, each of the ring substituents having labile hydrogens at a benzylic site therein, selected from the class consisting of 1,3,5 triethyl benzene; 1,2,4 triethyl benzene; and 1,3,5 triisopropyl benzene.~~

27-41. (Canceled).